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## Looking at the Tuberculosis Problem

A SYMPOSIUM<sup>1</sup>

THE TUBERCULOSIS OFFICER

J. E. HILTZ,<sup>2</sup> M.D.

OVER the past few years, we have seen tuberculosis mortality rates fall precipitously and morbidity rates decline less rapidly. These falling rates have brought with them increasing problems engendered in part by unthinking optimism and in part by an impatient search for and acceptance of unwarranted short cuts to recovery.

Tuberculosis is still a chronic disease. We may have shortened the required period of treatment by a few months but this is the same as the motorist who slows down to seventy miles per hour. It is still an impressive figure. Not only must we bring tuberculous disease to the place where the sputum is negative, symptoms are absent and the X-ray is satisfactory but we must see that this state of affairs continues permanently. This requires careful regulation of convalescence for many months after satisfactory X-ray and sputum status is reached. This is difficult to impress upon many of our patients. It is even difficult to impress this upon some of our confrères, especially our younger physicians, who may be swayed by X-ray interpretations to the exclusion of the exercise of good clinical judgement.

We find, too, that some of our good family physicians are willing to accept reactivation of tuberculous disease as inevitable. Those patients who do reactivate are so distributed among the clientele of the various family doctors that no one man sees more than the occasional reactivated case and so he may not be impressed. Our clinic services in Nova Scotia, however, are showing one case of tuberculosis reactivating for every three new cases found. If we could eliminate our reactivations, we would diminish our bed requirements

<sup>1</sup>Presented at the fifty-seventh annual meeting, Canadian Tuberculosis Association, Vancouver, June 26, 1957.

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by 25%. We could also eliminate much mental distress on the part of the unfortunate patient who has reactivated and upon the part of his observant porchmate "on the cure" for the first time who may begin to wonder how permanent his own "cure" will be. A more cautious and a more prolonged convalescence is the answer.

Another problem is that of the false reactivation—not false because the disease is not really active, but false because it was never really inactive. Too often does the patient refuse to believe that his disease is not healed when his sputum becomes negative for tubercle bacilli, even though he is still receiving antimicrobial therapy. Too often, he is discharged to his home while still receiving drug treatment, symptom free and with evidence of satisfactory improvement of the lesion from an X-ray point of view but without any real knowledge of the true sputum status or, indeed, a clinical trial before discharge to determine the stability or instability of the lesion after drugs have been discontinued.

Indeed, of those patients discharged from hospital to continue antimicrobial therapy at home how many faithfully take the prescribed drugs? How frequently is the P.A.S. or I.N.H. forgotten or disregarded? How often are the doses reduced because there is no nurse or doctor close by to encourage the patients to persevere because it is in their interest to do so? This is bad enough for the convalescing patient but even worse for the patient who is receiving his entire course of treatment at home. What chance has such an average patient who has no one at home to share with him his restricted routine, his nauseous pills or his discomforting injections? He is unsupported in his misery by other than carefree happy members of his family who may do with impunity all those things he would really like to do himself but should not. Only the patient with a ramrod spine and iron will power may be expected to stand such an "ordeal by aggravation".

And what may the end result of such a situation be? First, by lack of perseverance, the patient may prolong his required treatment period. Secondly, he may convert a recent lesion carrying a good prognosis to a chronic one with a poorer outlook in respect to both the time and actual accomplishment of recovery. Thirdly, his tubercle bacilli may develop drug resistance so that the antimicrobials become only partially effective, or even worse, completely ineffective. Fourthly, and more important, he may infect his home contacts with tubercle bacilli which are drug resistant at the very start.

In a national survey carried out in Britain by Fox *et al.* (1) in 1955-56 it was shown that of 1,404 sputum specimens in the same number of untreated patients, 974 yielded cultures positive for tubercle bacilli. Of these, 50 or 5.1% were resistant to one or more of streptomycin, P.A.S. or isoniazid. Five of the strains showed resistance to more than one of the drugs.

In a later work, Frappier *et al.* (2) showed that of 686 cultures of tubercle bacilli, prior to the treatment of the patients with antibiotics, 10.8% were found to be resistant to 10 micrograms of streptomycin and an appreciable

1. Fox, W., *et al.*: *Tubercle*, 1957, 38: 71.

2. Frappier, A., *et al.*: *Canad. M.A.J.*, 1957, 76: 653.

number were resistant to the other anti-tuberculosis drugs. It was suggested that this percentage of resistant strains was higher than those reported elsewhere due to the comparative recency of the investigation. In other words, the danger of developing drug resistance is increasing with the passage of time. It is conceivable that, at this rate, one of these days almost all tubercle bacilli will be resistant to streptomycin, P.A.S. and isoniazid and so their value as treatment agents may be negligible.

#### *Care of all sputum positive cases in sanatorium*

Such a situation may be prevented by the treatment of each case of tuberculosis of the lungs in a tuberculosis hospital away from his home contacts as long as he is truly infectious. This may be for a considerable period of time beyond that needed just to provide sputum negative for tubercle bacilli within the first two to three months following the discontinuance of antimicrobial therapy.

This may sound like the credo of a fanatic sanatorium superintendent who cannot bear to see empty beds in his institution. Nothing could be further from the truth. In Nova Scotia, we favour treatment at home during the non-infectious stages of convalescence, we favour home treatment of non-pulmonary tuberculosis in many cases where this is possible, but we still deplore the presence of the positive sputum case in the home. There is no such thing as the "good chronic" outside of the tuberculosis hospital.

In regard to institutional treatment, the role of surgery has not yet been established with finality. There is still a small place for pneumoperitoneum treatment, perhaps a very, very small place for artificial pneumothorax therapy, a little room in our decisions for thoracoplasty, but most lung surgery for tuberculosis now is excisional. There is no doubt about the need for removing gross cavity or infectious bronchiectatic lesions. There is less certainty about small residual caseous or bronchiectatic areas in the absence of symptoms or positive sputum. If we are to prevent reactivations as frequently as possible and so prevent the spread of disease to others, such lesions must be removed.

#### *Value of bed rest*

And while speaking of therapy, we should stress the value of bed rest treatment in the early stages of care of the tuberculous when exudative lesions are capable of being absorbed. In the so-called "good old days", before we had the antituberculosis drugs, bed rest treatment held a very important position in tuberculosis hospitals. Since the advent of drug therapy some of us have become careless in this regard. It may, therefore, be worth stressing that if bed rest treatment brought about healing of tuberculous disease years ago without the aid of drugs it can still do so, more quickly and more permanently, when augmented by them. With evidence of increasing numbers of tubercle bacilli becoming partially or totally resistant to antimicrobial drugs either before treatment is started or during the course of therapy, the place of bed rest in our treatment schedules is extremely important and should not be neglected.

### *Nurse training in tuberculosis*

Some institutions have experienced already, and others will do so later, a discontinuance of student nurse affiliations in tuberculosis hospitals. This is inevitable as the number of tuberculosis beds in operation diminishes and the number of student nurses in training increases. This is regrettable. There are still thousands of new cases of tuberculosis awaiting discovery in the communities, there are still thousands of cases of tuberculosis needing care. Alas! there are still nurses developing tuberculosis in general hospitals. If student affiliations must be abandoned due to an absence of sufficient teaching beds, let us increase our efforts to provide intensified instruction in regard to tuberculosis in the parent schools of nursing. For many years, tuberculosis services were so large, so well organized and so well manned by enthusiastic staffs that some of us lost sight of the fact that tuberculosis nursing is part of public health nursing. Indeed, tuberculosis is the most important of the public health diseases in North America. Let us put tuberculosis back into the public health teaching for our student nurses. Public health will be the better for it.

### *Age distribution is changing*

It is well known that tuberculosis in Canada is becoming a problem more of the older age-groups than of the younger. More than half of the patients under treatment at the Nova Scotia sanatorium are over 40 years of age and an appreciable number over 60, 70 and even 80. Indeed, in one of our provincial institutions one patient is over 102 years of age. These people, 40 to 100 years of age, are the product of the years 1857 to 1917 when the incidence of tuberculosis in the community was high and the degree of infection by tubercle bacilli and tuberculinization was almost 100%. These age cohorts (3) of 1850-59, 1860-69, 1870-79 and so on, as described by Wade Hampton Frost, were probably all exposed to universal infection by the tubercle bacilli and so contributed our heavy case loads of tuberculosis as they broke down in subsequent years. How different is this from the present situation when the cohort of children born from 1950-59 will be exposed in their homes and elsewhere to extremely low degrees of tuberculinization. Indeed, our high school students who form part of the 1940-49 cohort now show under 5% tuberculinization in many areas. They will contribute few new cases of tuberculosis if we continue good control measures. Those children born since 1950 will contribute even less. Our case loads of the future, therefore, will continue increasingly to be weighted toward the older age-groups. Tuberculosis has now become a geriatric problem, and the tuberculosis officer must be trained in all other phases of medicine involved in the care of the aged.

### *Tuberculin testing*

And finally, the future brightens for the tuberculin test and dims for the mass X-ray survey as diagnostic procedures. In many regions of Canada, our high school leavers and college students show a tuberculin reaction rate of under 10% and even, in some areas, under 5%. In a few more years, this tuberculinization experience will extend to our 30-year-olds and then later to

3. Frost, W. H.: Am. J. Hyg. 1939, 30: 91. Papers of Wade Hampton Frost, Commonwealth Fund, New York, 1941, 593.

our 40-year-olds. Is it sensible to X-ray 50,000 persons when a tuberculin test would indicate that only 2,500 of these could possibly have tuberculosis. Forty-seven thousand five hundred unnecessary X-rays, large or small, represent a great deal of money—not alone for the X-ray films and X-ray equipment but more especially in terms of staff required to man the mobile units, develop the films, interpret them and finally round up those persons who need clinical appraisal. On the other hand, one nurse can carry in her little satchel all that is needed to tuberculin test one hundred, yes, one thousand, persons a day. Unaided, she could easily test three to four hundred persons a day. Theoretically, the replacement of mobile X-ray units by tuberculin testing teams is absolutely sound. Administratively, it is not so simple, but it will be worked out. The need is for a good but accurate single test procedure whether it be a modification of the Heaf Test or the Mantoux Test. This must be coupled with a good educational approach, not to sell the idea that an X-ray is unnecessary but rather that the tuberculin test may be just as or even more important. Let us reserve BCG vaccination for very limited groups who have a gross environmental or occupational hazard of exposure to tuberculosis so that we may not make impossible good tuberculin test surveys in our general population under the age of 40 years. Those over 40, as they are entering the cancer-prone age-groups, probably should be X-rayed in any case. In addition, one need not worry too much about repeated X-rays interfering with race fertility at these ages.

### THE HEALTH OFFICER

STEWART MURRAY,<sup>3</sup> M.D., D.P.H.

Tuberculosis is still a major public health problem. Statistical data indicate a steadily decreasing death rate for the past many years and a marked increase in the rate of this reduction during the past ten to fifteen years with the introduction of improved methods of treatment and, indeed, new treatment with the use of anti-microbial agents. Morbidity rates, while improving, have failed to keep pace with the decreasing death rate. Statistics of reported cases from our own Department of National Health show very little change during the years 1928–1955. The fact that large numbers of citizens of all age levels continue to experience long periods of incapacitation from tuberculosis is a challenge to our imagination and resourcefulness.

If tuberculosis is to be relegated (and I think it can be) to the present position of diphtheria, typhoid fever, or smallpox, then we must look more closely at the factors contributing to infection. Without the presence of the tubercle bacillus there can be no tuberculosis. The organism comes from one source only—the active case. Active cases are of two types, the known and the unknown. With reference to the known case and the greater use of home care, are we certain that we can differentiate between infecting and non-infecting sources? Are all cases "infecting"? Are we sufficiently aggressive over a sufficient period of time in the follow-up of contacts—family, household, indus-

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trial, social, and occupational? The follow-up of the contacts of known cases is a responsibility of the physician in private practice, as well as the physician in industry, institution, or in general public health work.

What are our tools? The Mantoux test is specific and gives an answer as to whether or not there has been infection. Is it being used enough? I am sure all of us could be more active in this field.

The cases come from tuberculin-positive individuals. Is our program of observation and guidance of these persons as complete as it might be? Dr. Holmes, in his study of cases at Firland Sanatorium in Seattle, points out that many cases of tuberculosis have experienced unusual emotional strain in the two years preceding the conversion of the infection into active disease. Here is an aspect about which all practitioners of preventive medicine can do more than is presently being done. The first step is to seek out the tuberculin-positives and in place of limited study of the physical person, direct efforts toward a study of the emotional life and assist in correcting situations causing stress and strain.

Along with the study of the psychological complement, let us direct our energies, together with those of the sociologists and others, toward improving sociological and economic situations which play such an important part in the development of cases. Anthony M. Lowell in his report on the study of "Socio-Economic Conditions and Tuberculosis Prevalence in New York City 1949-1951" writes:

"Social and economic elements of daily environment are important determinants in health and welfare, especially in our congested large cities. Differences in economic status, housing, sanitation, overcrowding, medical care, occupation, and other factors are measurably associated with and related to the disease rates of a community. It is axiomatic that improvement of a community's environment must be the will of the people and it depends in great measure upon the degree of enlightenment of public opinion."

This theory is not new and conditions exist in all of our cities and towns which certainly contribute to ill health. To refer back for a moment to a phrase from Lowell—"the degree of enlightenment of public opinion,"—are the programs in health education sufficiently dynamic to result in action? In tuberculosis control, the days of the spectacular are long past. The fewer the number of deaths, the harder it is to influence people, therefore, the importance of a closer look at education toward healthful living must be stressed.

All of this can be summed up in the need for a greater emphasis on the study and treatment of the whole man and his environment. Incidentally, Allen K. Krause recognized this in his paper "Environmental Factors in Tuberculosis", 1920. He defined environment thus: "environment comprises all and everything that enters into the experience of a human being; with regard to tuberculosis, any experience that may modify in any way the origin and development of infection is an environmental influence".

In treating our patients, is our approach toward the whole person? It is not enough to treat the actual lesion. Progress in lesion therapy has been spectacular but in other aspects of care have the successes been so marked? There are

still many problem cases, dissatisfied, unhappy individuals who present perplexing problems. These patients are difficult to handle whether they be in institution or at home. While compulsory retention in the sanatorium is necessary, that alone will not meet the challenge. Can the psychiatric and social sciences be of greater assistance? I think they can.

The handling and guiding of the patient through the active treatment must be followed by more effective rehabilitation. In the National Tuberculosis Association Bulletin March, 1957, A. Ryrie Koch dealing with this subject states "All the evidence shows that many categories of tuberculosis patients still have a continuing and vital need for effective rehabilitation services". Preliminary results of a statewide survey show that in the opinions of the doctors alone, 28% of the patients needed one or more vocational rehabilitation service. This figure includes persons who leave hospital against medical advice. In a study made by the U.S. Public Health Service, 45% of the now-hospitalized patients in the sample had left the hospital against medical advice. There is also the patient with alcoholism; the patient with other chronic illness, and the elderly patient. All require special consideration if they are to be effectively controlled as sources of infection and rendered productive citizens again.

The public health official must have some knowledge of the community resources. Today, the medical profession is fully informed, but is the profession applying the knowledge and techniques in infection-finding, case-finding, treatment and rehabilitation? The fact that the province carries the major portion of the tuberculosis control program is not a reason for less participation by the physician in private practice. Tuberculosis cannot be eliminated without the help and leadership of the family physician.

In other branches of medicine, increasing interest is being taken in routine chest plates for case-finding of tuberculosis and other intra-thoracic conditions. Our associates in the other disciplines are available to round out the program for total care and prevention. In brief, there are ample resources in all communities. Are we making the best use of them? Are we making full use of epidemiological techniques? Are the statistical indices sufficiently sound to direct the expenditure of energies in the most productive channels? One sees the need for review of the programs and periodic evaluation.

The Medical Officer of Health sees wonderful progress in the treatment of tuberculosis but he sees also the need for greater effort to reduce the occurrence of the disease and more effective treatment of the whole patient which can be achieved by the full use of all disciplines with their varied tools and techniques.

### THE GENERAL PRACTITIONER

E. C. McCOY,<sup>4</sup> M.D.

The rôle played by the general practitioner in the diagnosis and treatment of tuberculosis has been continually changing. In the early part of the twentieth century, the general practitioner made the diagnosis and provided treatment.

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Later, X-ray surveys were introduced sponsored by government or voluntary societies. This led to government-operated treatment centers and sanatoria. Specialists in surgery and internal medicine became tuberculosis specialists. The general practitioner was active still in case-finding but gradually played a smaller and smaller part in treatment. The adoption of this program on a wide scale and the introduction of new drugs in treatment and new techniques in surgical treatment, brought an entirely different situation. Today, we have empty beds in sanatoria and the average stay has been reduced. The general practitioner now has very little part in the active treatment of tuberculosis. The tuberculosis specialist and the treatment centers have done a good job and now we find tuberculosis mortality and incidence decreasing rapidly.

One can visualize a further change in the pattern of tuberculosis treatment and we are already in the early stages of this development. Medical treatment of tuberculosis with combined antibiotic therapy and, in some cases, with surgery has shortened the period in an institution to a matter of months rather than years. In the sanatorium the patient receives education concerning tuberculosis so that he is able to carry on at home and co-operate in the treatment.

Case-finding has not changed as much as treatment. It is important still that large-scale surveys and routine examinations be made. This is a place where the general practitioner can and should play an important part. He needs to keep emphasizing the importance of routine chest X-rays. Routine chest X-rays of all patients entering hospitals is one good way of extending the use of this measure.

In regard to education, it seems very evident that pamphlets, films, and other media of the public relations program have been effective. There is today no problem in letting a patient go to a center for a routine chest X-ray. People are now aware of the value of an annual chest X-ray. The general practitioner can and does play an important part in the education of the family, in helping to orientate the patient to hospital life, and in helping to solve emotional problems.

Despite the improvements in tuberculosis treatment and the progress being made in the control of the disease, it is most essential that we do not become complacent. There are other important factors such as better housing, better sanitation, good nutrition, shorter working hours, more leisure and more recreation. All of these play a part. But, we still need good case-finding techniques. The most important aspect of the tuberculosis program is the early discovery of cases. It is in this field that the general practitioner can and does play an important rôle.

### THE VOLUNTEER WORKER

T. A. SAUL<sup>5</sup>

If I were to ask "What is the greatest problem in the campaign against tuberculosis?" I would probably receive several different answers. From the

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standpoint of the voluntary associations from coast to coast, I think I can safely say that the unanimous reply would be—"public apathy". Our principal weapon to combat this is education. But, let us be sure that we attach the broadest possible meaning to this term. Education embraces every practical means of conveying information to the general public with the object of developing an informed public opinion. One of the most important methods is the development of strong voluntary associations across the country.

In Ontario, the voluntary association has five principal functions in the fight against tuberculosis. This five-point program includes: the sale of Christmas seals, case-finding, social service, rehabilitation and health education. The activity that receives the greatest emphasis is the raising of funds through the annual Christmas Seal Campaign. This is usually the best effort of the local association because it is well organized, capably directed and has a definite objective. The annual Christmas Seal Campaign does a good job, for a few short weeks, of educating the public about the need for Christmas seal funds and the uses to which they are put.

Case-finding, through co-operation with public health agencies and doctors and hospitals, has become an important feature of the work of many of our local associations. Some of them are carrying out very extensive programs involving regular chest X-ray clinics, pre-employment X-ray services and regular checking of special groups such as food handlers, etc. In communities where such broad programs are being carried out, it is generally found that the public is better informed about tuberculosis than elsewhere. Social service activities also are featured by some of the more progressive volunteer groups but most local associations could do more in this field. Rehabilitation is sadly neglected by many local associations and activities limited to handling cases thrust upon them. Education should be a primary function of every local association, yet it probably receives less real effort than any of the others. This lack of interest in education cannot be attributed to any fault of our Canadian Association for it is providing an excellent example in this field.

The ineffectiveness of any aspect of the work of the local association can usually be traced to apathy. It would appear that our fight should start in our own ranks. Is there any basic fault in our own organization that is hampering our effort? We hear a great deal at every Tuberculosis Association meeting about the decline in the death rate and the progress that has been made in this direction over the past half-century. We are given statistics about the incidence of the disease, the number of sanatorium admissions and discharges, but this information does not seem to receive nearly as much emphasis as the decline in the death rate. Is this the crux of the problem? Are we so busy patting ourselves on the back over the decline in the death rate that we have understated the real problem, that some 10,000 new cases are being found in Canada every year? If we keep emphasizing the progress being made in one direction without arousing concern over the lack of progress in the other, are we not bound to create indifference in the minds of the general public?

I suggest that the potential value of the voluntary association has been greatly under-estimated. If we adopt, as a major objective, the attainment of

an aggressive five-point program for every voluntary association in Canada and devote the same amount of time, effort and money to this objective as we do to the sale of Christmas seals, I believe we would strike a tremendous blow at the incidence of the disease in years to come. We must begin by educating our own supporters to the need for a five-point program in every community. I do not think the average voluntary worker realizes that tuberculosis is still a serious health problem. In lieu of dollar objectives for the seal sale we might adopt objectives based on the number of new cases found. We must awaken our own members to the need for a much broader case-finding program based upon a comprehensive educational campaign that will bring the facts about tuberculosis to every family in the country.

If we look further afield at the activities of national and international service organizations, we find that the enthusiasm of the local groups is constantly being whipped up by visits from district, provincial and national officers who keep a close check on the complete program of each local group. Much can be accomplished by regional meetings and by giving public recognition to those members of local organizations who sacrifice their time and money in the interest of tuberculosis prevention. I suggest that voluntary workers are potentially the strongest force to combat public apathy throughout the country. In order to achieve maximum results in the campaign against tuberculosis, we must develop an effective, comprehensive program in each community based upon maximum co-operation between voluntary workers and professional workers.

#### FORTY-SIXTH ANNUAL MEETING

Canadian Public Health Association  
in conjunction with

Western Branch  
American Public Health  
Association

British Columbia Branch  
Canadian Public Health  
Association

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Hotel Vancouver  
Vancouver, British Columbia

## Quality Control of Medical Care Under a Prepaid Plan<sup>1</sup>

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THE first part of my talk will be devoted to methods established by the Health Insurance Plan of Greater New York to improve and control the quality of medical care rendered its subscribers. Then I shall explore possible ways of quality control in prepaid plans in general.

The Health Insurance Plan, or H.I.P. as it is usually called, is a non-profit insurance company contracting with medical group partnerships to give comprehensive medical care to its subscribers. Today, this medical care is given by more than 1,000 physicians in 32 medical groups to over half a million people. While legally an insurance company, in practical operation H.I.P. is a medical care plan. Its chief goal is the provision to its subscribers of medical care of satisfactory quality. This concern with the public interest is reflected in the composition of its board of directors, only one-third of whom are physicians.

In presenting H.I.P.'s experience I realize I run the danger of being unrealistic in supplying answers to some of your problems of quality control as all but one medical group in H.I.P. give services in a densely populated urban area with medical groups paid on a capitation basis. Your problems generally relate to more sparsely settled regions and to the field of indemnity insurance. With Canada's rapidly increasing industrialization and the aims of the Canadian Congress of Labour (1), you may find in the future a mounting public pressure for greater coverage. As an example of such public interest and pressure, the Community Health Association of Detroit is starting a comprehensive medical care group-practice plan for all people in Detroit of modest incomes. Consequently, it may not be entirely unproductive to list some of the standards H.I.P. has established and the methods it has used in striving to achieve a high quality of medical care, as well as to cite some precautions to be taken to insure quality control.

H.I.P. has two principal mechanisms for maintaining standards in its medical groups. The first is a contract between its board of directors and each medical group which details the benefits to be provided subscribers and the legal requirements of the partnerships of physicians. The second is a medical control board which sets standards to be met in the professional work of the medical groups and in the qualifications of physicians accepted for membership. This board is composed of 18 physicians some representing H.I.P., some its medical

<sup>1</sup>Presented before the Medical Care Section, Canadian Public Health Association, at the forty-fifth annual meeting held in Toronto, May 27-29, 1957.

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groups, and others outstanding in the community but in no way associated with the Health Insurance Plan. An example of the general standards it sets is the requirement that every medical group have at least 5 family physicians and a specialist in each of 12 different fields of medical practice.

#### *Qualifications for Physicians:*

The Medical Control Board originally set standards for qualification of specialists only, but in 1950 also included standards for family physicians. H.I.P. has always considered family physicians to be the key members of their medical groups, but it is among them that we have found the more serious weaknesses. Hence, the standards have been progressively tightened until now the minimal standards are: graduation from an approved medical school, internship in a hospital approved for intern training and a staff appointment in an approved voluntary or municipal hospital.

A current study has shown that family physicians who are either board-certified or board-qualified internists give medical care of a much higher quality than the average general practitioner. Some of us are considering the desirability of adding a requirement that each family physician applicant have an approved two-year medical residency unless for the five years immediately preceding his application he has held a staff appointment on the medical service of an approved hospital.

In addition, with respect to adding a new family physician, a medical group must submit an application in writing to the Medical Control Board accompanied by a statement that its chief internist has visited the physician's office and found it and his methods of practice acceptable. There is also an interview with the applicant at his office by one of the internists on H.I.P.'s medical staff. A small committee then interviews him to evaluate his attitudes towards patients and group practice. Then, if not board-eligible, the applicant must take a written examination of the multiple answer type drawn from a list prepared by the Professional Examination Service of the American Public Health Association, after which his name comes before the Medical Control Board for action. In all cases of physician acceptance or rejection, the Medical Control Board's decisions are final.

The Medical Control Board has also established qualifications for a list of "super-specialists" to give services in certain fields considered to be beyond the training and capability of the usual specialist, e.g., neuro-brain surgery, thoracic surgery, cardiac surgery, special paediatric surgery, plastic surgery, etc. In the various fields of medicine it has also approved physicians as consultants to be used when the groups desire additional advice. The fees of these men are paid on a liberal fee-for-service basis either by the medical groups or through a special fund, so that their services are provided at no extra cost to the subscriber.

#### *Standards for Clinical Records:*

The theory underlying H.I.P.'s standards for clinical records is that in a medical group-practice unit, for any physician seeing a patient, the clinical record should present a fairly good overall picture of the patient's medical history and present status. Thus, among the standards are: the use of a uniform medical record form for all physicians; a base line medical examination to be made early in the care of the subscriber which shall include certain components; records to contain, in addition to indicated clinical data, all laboratory, X-ray, consultation, operation and pathology reports and hospital transcripts; these to be maintained both in the family physician's office when situated outside of the group medical center, and in the center chart which should be a unit medical record. It has recommended that obstetrical delivery records contain such data as will enable H.I.P. to make a critical study of its perinatal mortality.

\*Authorized, November 1957.

*Preventive Services and Other Requirements:*

The Medical Control Board has set up standards for preventive services for adults, prenatal care, and well-baby care during the first year. It has ruled that all children's services up to at least the age of 3 be given by paediatricians, and that the services of paediatricians be available on a consultation basis from that age up to the age of 12. It has also directed each medical group to establish a functioning department of medicine composed of the family physicians headed by the chief internist of the group. It has ruled that all groups shall have at least one scientific conference monthly to be held apart from any business meeting, and that all specialty services shall be given at the medical group center. In addition, either through the directives of the Medical Control Board or through contractual agreements, each group must establish: (a) adequate follow-up systems for patients failing to report for recommended tests or consultations, or failing to carry out recommended therapy in cases representing serious or potentially serious illness; (b) a tumor board to act as an internal audit of medical group care in cases of malignancy; (c) an appointment system for all physicians and with some leeway, the employment of office assistants. I might say that in my opinion, no physician can practise medicine satisfactorily without an office assistant.

In addition to these controls, H.I.P. has a central medical department headed by a vice-president of the organization (a physician board-certified in public health and obstetrics and gynaecology) with seven medical associates, six of whom are either board-certified in internal medicine or in preventive medicine and public health. This team works primarily to obtain the co-operation of the medical groups in promoting a high quality of medical care.

*Research and Statistics:*

Another valuable department is that of research and statistics. It obtains much of its information from a form on which every H.I.P. physician records each service he renders, with the subscriber's age and identification data, the date and tentative diagnosis. In addition to its routine work of compiling utilization rates, it has also focused on devising means to measure the impact of medical care on the health of enrollees in the plan (2, 3). Some of the studies under way are: effect of variations in utilization factors on health of enrollees, influence of prepaid comprehensive insurance for medical care on hospital utilization, prematurity and perinatal mortality studies and cancer study.

Recently, in conjunction with a foundation, H.I.P. has established individual research fellowships in medicine and paediatrics. These are to encourage board-eligible young physicians to join H.I.P. by enabling them to give half-time to research at a medical school or hospital, and half-time to H.I.P., thus assuring them of a basic income during their early years of practice.

*Health Education:*

H.I.P. also maintains a health education service under the direction of an expert in this field with a staff of five health educators and writers. In addition to their primary aim of health education, they aid in improving public relations by arranging periodic subscriber meetings with physicians in each medical group, at which a health topic selected by the group and its subscribers' committee is discussed, usually with a film and a long question-and-answer period following, and by publication quarterly of a subscriber bulletin.

*Medical Audits:*

A critical look at one's work is always salutary. It measures the realities of accomplishment against the goals of idealism and prevents smugness; if the audit is an

external and independent one, there is no danger of a coat of white-wash. Such an external medical audit was a study of the quality of medical care authorized by H.I.P.'s board of directors and now just reaching completion after 3 years' work. The details of methodology can be found elsewhere (4, 5), but in summary it involved the study in 30 medical groups of the work of some 650 physicians giving service in the fields of internal medicine, paediatrics, surgery, obstetrics-gynaecology, radiology and pathology. These areas account for 80 per cent of all services to H.I.P. subscribers annually. The work of every physician in these areas was studied in the field by a board-certified specialist, a man of mature experience and high professional standing and not associated in any way with the medical groups giving service to H.I.P. subscribers. This method of study was helpful in many respects; it showed that in many areas, and by many physicians, a satisfactory quality of medical care was being rendered. It also uncovered weaknesses of individual physicians, record deficiencies, and lack of departmental organization and group integration. It also disclosed where follow-up systems and tumor boards were poorly organized or lacking, where departments of medicine were functioning inadequately and where there was other evidence of failure to carry out Medical Control Board directives and contractual obligations. It also revealed group weaknesses in handling certain categories of disease, namely anaemia, hypertension, peptic ulcer, diabetes, neoplasms of the gastro-intestinal tract, urinary tract infections; and in children, a lack of policy in handling certain important illnesses namely, rheumatic fever, suspected rheumatic fever, congenital and rheumatic heart disease, nephritis, urinary tract infections and abnormalities and cryptorchidism. So much for the various measures which H.I.P. has initiated in its endeavour to improve and to control the quality of medical care given by physicians serving as subscribers.

#### RURAL GROUP PRACTICE PLANS

Before discussing quality control in general, I might mention two medical group practice plans which are working well in rural communities. One, organized and directed by Dr. Caldwell B. Esselstyn, the Rip Van Winkle Clinic (6, 7) is situated in Columbia County in the mid-eastern part of New York State. This group has operated successfully in the public interest in a rural community on a fee-for-service basis. The participating physicians are salaried board-certified specialists pooling all professional income, as it was found that general practitioners in the community were not willing to give the amount of time deemed necessary for satisfactory care of patients. The other one is in Hunterdon County in the State of New Jersey (8). Located in the northwestern part of the state this county has about 44,000 people in 13,000 families. After a survey of medical needs had disclosed a lack of facilities to meet them, the citizens raised a considerable sum of money and formed a foundation which built a hospital and employed, on salary, a group of young specialists attached to a medical school in New York City. These specialists, with the exception of one day a week in New York spent in medical teaching, give full time to their local hospital work. The hospital is open to physicians in the community according to their capabilities, with aid from the specialist staff whom they use in consultation both formally and informally. The result has been to give the community a fairly comprehensive coverage within the county on a fee-for-service basis, and a progressively higher level of quality of medical care through physician co-operation and education.

**QUALITY CONTROL IN GENERAL:**

At the outset, let us digress into the field of semantics to be sure that when we speak of quality control we are talking about control of the same thing. At a recent regional meeting of the A.P.H.A., Medical Care Section, it was obvious that in the minds of most discussers the important issue was the availability of medical and hospital services to the aged and low income groups. In other words, to the extent that services to any considerable segment of the population were lacking, quality was poor.

Another group links quality primarily with patient-comfort and satisfaction. It states that, apart from the control of contagious, communicable and infectious disease, professional skills have had little influence on morbidity and mortality rates and expected life spans. Irrespective of statistical data, I am certain that all of us would consider paramount the professional competence of the physician to whose care a member of our own family was entrusted. In our H.I.P. audit we always emphasized the importance of doctor-patient relationship though our survey was confined to the study of professional care. In the presentation of our findings to a medical group, however, we always ended on the note that, despite its importance, a satisfactory doctor-patient attitude could never be accepted in lieu of professional competence.

Having clarified my position, I am assuming that the title of the topic for this meeting may imply that you have a concern beyond merely insuring the public against the costs of medical care. Also, that in your mind, as in mine, there may be the thought that the possession of a license to practise medicine does not automatically endow all recipients with equal competence or conscience, or both. Consequently, as I am speaking primarily of professional competence, it seems to me that the first step in quality control is the setting up of criteria to be met by physicians who are to have the privilege of serving insured subscribers. So far as I know, no indemnity plan with physician reimbursement on a fee-for-service basis has set any medical standards for general practitioner participation, or any control of performance measured on the basis of professional quality.

One would expect this from commercial insurance carriers but hardly from non-profit plans which obviously consider consumer interest. I would say that as a minimal requirement for a general practitioner to participate in any pre-payment plan, graduation from an approved medical school, internship in a hospital approved for intern training, and, in urban centers, a hospital staff appointment would be a step in the right direction. Then, too, efforts should be made to have only qualified persons perform specialized functions. For example, one non-profit fee-for-service insurance organization in New York pays for unlimited laboratory and X-ray tests only if they are performed by the attending physician in his office. As the attending physician is usually a general practitioner this discourages the use of qualified pathologists and roentgenologists.

It is those insurance plans giving comprehensive medical care with no restrictions on utilization that I wish to discuss further. I think it is safe to say

that no such plan can long remain actuarially sound unless served by physicians on a salary or individual contract basis or by compensation of medical groups on a capitation basis. Such plans operate best as group practice units. Unless the entire medical profession will submit to control of fees as in Windsor and a few other places in Canada, this means a closed panel system and limit of physician choice if the consumer desires insurance with comprehensive medical care. On the other hand, such plans offer greater possibilities for establishing standards for control of the quality of medical care such as I have recently outlined for you in discussing the Health Insurance Plan of Greater New York.

For such a plan to succeed over the years requires either contracts with individual physicians for full-time group practice in the plan, or if part-time group practice is necessary, the pooling of all fee-for-service and insured income. We have not as yet reached the point of complete pooling of professional income in the Health Insurance Plan, and this dichotomy of economic interest, particularly in the case of certain family physicians, is a potential hazard to the quality of care received by insured patients.

A successful plan also requires the giving of all services out of a group center, or if necessary, subcenters as well, with elimination of the isolation which occurs when physicians practice only in their private offices. The use of such centers for medical services automatically assures the needed ancillary personnel and the setting up of appointment and follow-up systems.

A plan finally requires the right on the part of the insurance company to terminate its contract with any physician or group of physicians if:

- (a) professional services to subscribers fall below an acceptable standard;
- (b) if a physician's patient attitude renders his continued presence in the medical group inimical to the group's welfare;
- (c) if a physician's personality makes him constantly a thorn in the side of his medical confrères with whom he associates.

#### QUALITY CONTROL IN HOSPITALS:

In recent years this has progressed rapidly. The Joint Hospital Accreditation Board has made remarkable progress, but meeting its standards is purely voluntary. Improvement in the quality of professional services was brought about by governmental action after the exposé of the situation in the Veterans' Administration Hospitals in the United States when the federal government put the responsibility for staff, and resident appointments and training into the hands of the medical schools.

In Ontario, I understand that in the case of certain hospitals outside of Toronto, the provincial government has placed their staff appointments under control of the University of Toronto.

As a group, the insurers against the cost of hospitalization have shown little or no sense of responsibility as to the kind of institution in which their enrollees are hospitalized. Blue Cross seems completely unconcerned whether its subscribers get hospital care in a teaching hospital maintaining the highest standards, or in the worst type of proprietary hospital with practically no standards at all. The matter is of more than academic interest because all too

often the poorly trained general practitioner treats his patients in such a proprietary hospital where no questions are asked and physicians are free to give care in any field in which too often their financial interest is the chief factor determining their capability.

In prepayment plans which do not own their hospitals, participating physicians should use voluntary accredited hospitals to the greatest possible extent; and medical care plans should use their influence when the use of proprietary hospitals is necessary to endeavour to raise their standards to acceptable levels.

With medical group practice units we must realize that satisfactory integration so far as hospital care is concerned is almost in inverse ratio to the number of hospitals used by a group. It is especially important to have the medical and surgical men utilize the same hospital for proper pre- and post-operative care, and for the paediatricians to have access to the same hospital in which obstetrical deliveries occur.

#### GOVERNMENT INSURANCE:

In medical practice plans which are established for the care of the entire community as in Great Britain and Saskatchewan (9), obviously, licensed practitioners cannot be excluded from participation. Here are true prepayment medical plans in which the premiums are paid annually through taxation. In establishing a mechanism for bringing medical care to all of its citizens through compulsory premium payments, it seems to me to be at least debatable whether government has not the added responsibility of seeing that its involuntary enrollees get medical care of satisfactory quality. In Great Britain this is assumed to be assured for specialty care through its hospital set-up. However, Sir John Charles (10) using the duration of hospital stay of patients with myocardial infarction as a crude yardstick with which to measure quality of medical care, noted as evidence of varying quality that the average duration of stay was longer in London teaching hospitals than in non-teaching ones, and longer in both than in provincial hospitals. To establish supervision and quality control over the general practitioner's services, particularly if he is a solo practitioner, is difficult but in my opinion necessary to assure an adequate level of quality of professional care of his patients. A step forward would be to require his employment of an office assistant, to encourage joint sharing of offices with a confrère, and to allow him hospital privileges under supervision and make staff conferences mandatory.

I am sure that I have covered this whole field somewhat superficially and probably have touched on things inapplicable to many conditions in Canada; but at least I hope that I have brought awareness of the many areas which we have to consider when we speak of quality control of medical care.

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## DISCUSSION

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I would like to congratulate Dr. Woodruff on the excellence of his paper and the number of aspects of the subject that he has covered. In fact, I should much prefer to have him continue. We are fortunate to be able to hear of the experience of the health insurance plan of Greater New York, and of the most interesting studies that have been undertaken.

You will have noticed that the control exercised by H.I.P. has been done primarily by the insuring agency, and some of the control measures have been through the use of the closed panel system. I believe that the control initiated by the insuring agency raises the question of whether it would not be preferable for the medical profession, as a body, to exercise this control. I expect that Dr. Woodruff may support this principle too. It appears to be the experience in Canada that there are practical problems in operating a prepaid medical care plan. The result has been that the insuring agency has implemented certain quality control measures. These have generally been carried out with the co-operation of the medical profession.

The professional standards to which groups in H.I.P. must adhere are only practical in large cities, where group practice is common and where a sufficient number of specialists is available. Some of our prepaid plans have met this problem, to some extent, by limiting the services available from physicians according to their qualifications, or in other programs of only paying for specialist services when they are given by a qualified specialist. This particular type of control has usually affected only specific conditions such as cancer, or special fields such as radiology, surgery, and pathology.

We, in Canada, have placed more dependence on the examinations of qualification for the province or the Medical Council of Canada. It may be that we are more fortunate in the uniformity of the standards of our examinations. This type of review may be a necessity in H.I.P. but I would suggest that it should not be considered a long-range answer to the problem. If our health insurance plans were to select the best qualified physicians to provide services to their beneficiaries, then the physician who does not meet these standards is apt to suffer from a professional and financial selection. This may segregate him from his more highly qualified confrères rather than encourage him to meet their standards. If every insuring agency established its own standards, confusion and a multiplicity of standards would result. The type of probationary period of practice and the medical audit by a professional group not directly involved, is an example of quality control which deserves serious study. This is the type of critical evaluation which should be engaged in by our medical teaching institutions and licensing bodies as well as the prepayment plans. In my opinion, this is a responsibility which the insuring agencies should expect the

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medical profession and the medical societies to assume in the future. But, it will be important that all prepaid plans are willing to co-operate in every way with the professional audit. One of the important contributions of medical care plans may be to do research on this subject and to indicate to the profession those areas where quality should be studied and action taken.

The level of preventive services in H.I.P. is exceedingly high in comparison with most Canadian plans. Cancer control programs in some provinces serve the same purposes as the Tumour Board does in an H.I.P. group. The number of physicians engaged in the administration of the program described by Dr. Woodruff is an excellent feature and this is one facet where many of our programs have fallen short. There have been many practising physicians who have given a great deal of their time and energy to the administration of prepaid medical care plans but one finds relatively few in full-time administrative posts. One of the important points in Dr. Woodruff's paper is the suggestion that it is a responsibility of the prepayment plan to devise means, to measure the impact of medical care on the health of the enrollees, and to extend their studies beyond the routine tabulation of costs.

To my knowledge, medical audits have only been carried out to a very minor degree in Canadian prepayment plans. The audits that have been done have usually been conducted as the result of a complaint in a special case, or for special conditions. Such enquiries are usually intent on solving a problem rather than measuring the quality of professional care. It is evident that there is a need for routine and continuing medical audits for the protection of both the physicians participating in the plans, and the patients or subscribers.

Most of us have been impressed with the difficulty of attaining actuarial soundness while giving comprehensive care, on a fee-for-service basis. Yet, many of us are even more concerned over the difficulties of attempting to provide physicians' services, particularly in rural areas, on either a panel system or a salary basis. The majority of our Canadian prepayment programs are on a fee-for-service basis and it will be our responsibility to investigate acceptable quality control measures which can be applied to these programs. Whether prepayment is a factor or not, group practice is growing in Canada. Group practice may ease some of the problems of the insuring agency in quality control.

In our hospitals, there has been a far greater degree of quality control than in other forms of medical practice. In Saskatchewan, as in most parts of Canada, we have very few physicians practising who do not have a staff appointment to a general hospital. All of our hospitals operate under provincial regulations and in areas such as my own province, where a major portion of medical practice is carried on within the hospital, it does offer an excellent opportunity for quality control. The standards in these hospitals are carefully maintained within their resources and consulting staff are available in many fields of hospital activity. Medical bylaws, regulations regarding surgical privileges, and probationary periods before active staff membership, are common. The principal weakness is the lack of a hospital medical audit like the one being conducted in Michigan, or the type of control exercised in a teaching hospital. With the extension of hospital insurance in Canada, I believe we may expect that the provinces administering these prepayment programs will limit their payments to registered hospitals which meet acceptable provincial standards of care.

As a number of you may know, I have been closely associated for the past ten years with the compulsory prepaid medical care program in the Swift Current Health Region in southwestern Saskatchewan. As medical officer of health I acted as medical adviser to the Regional Board and, for a period of four years I was their medical assessor or referee. Some of the attempts at quality control in this fee-for-service program may be of interest when compared with H.I.P. experience.

This area is very sparsely settled and group practice is only possible in a few of the urban centers and then on a very limited basis. Most physicians practise alone or in groups of two or three and may be thirty to forty miles from any other physician. In

this setting, one can see that it would not be possible to use a closed-panel system where distance, in itself, often dictates the choice of attending physician. This is a generalized service paid for by compulsory premiums where the patient has a freedom of choice of physician within the area, and the physician has a freedom of choice of patient. The possibility of limiting contracts to physicians who have met the type of standards set forth by Dr. Woodruff, has been considered. This particular program has had problems with professional services, the physician-patient attitude, and they have had conflicts between a physician and his medical confrères. Until recently, this program has signed contracts with all provincially licensed physicians wishing to locate in this area. As a result of the problems mentioned above, the plan has this year reserved the right to cancel a physician's contract on the recommendation of the Medical Advisory Committee. This plan, also, had difficulties in assessing the volume and quality of laboratory and radiological services given in general practitioners' offices. With the approval of the medical members, they ceased to pay for these procedures in physicians' offices and made them a benefit in all hospitals throughout the area. This resulted in a sharp increase in the volume and quality of laboratory and X-ray services given by the small rural hospitals for both inpatients and outpatients. These services are now provided on a cost basis and this has resolved one of the conflicts which frequently occurred between medical members.

This plan employs a radiologist, on salary, who is available to assist every physician and hospital in the area. After some experience it was found necessary for quality control to eliminate a number of radiological procedures from the services that might be provided by general practitioners and to require that they be done by a certified radiologist. The Regional Board of Health operating this plan was instrumental in having a Regional Hospital Council established. This Regional Hospital Council employs a professional staff including a pharmacist, medical social worker, dietitian, radiographer, auditor, and pathologist. Their services are available to every hospital for the improvement of quality of care. This regional organization will also bring the medical staff of the 12 hospitals together with the ultimate aim of physician participation in professional quality control.

In the Swift Current Region they have had a very active Medical Assessment Committee elected by the participating physicians. The Region has also employed a licensed practitioner who is not in practice in the area, to act as their medical assessor or referee. This committee has reviewed pathology reports, methods of practice, type of care given, surgical rates, and a variety of matters on the quality of physicians' services. They have broad powers granted to them by the District Medical Society and the Regional Board of Health. Although this is a matter of opinion, I believe that the activities of this Medical Assessment Committee and their study have resulted in a number of changes in medical practice, which are an indication of an improved quality of care. For example, in this prepayment plan, suspension of the uterus, which was a very common operation, has become a rarity. The rate for tonsillectomy and adenoidectomy has, over the past eight years, been reduced to one third of its former rate. The proportion of normal tissues removed at operation by surgeons has decreased. The rates of pathological tissues for appendectomy is very high for physicians who have practised in the program for a number of years. It is interesting to note that some new physicians in the program have had a poor rating on tissue pathology, but when this has been drawn to their attention by this committee of their confrères, these rates have usually shown marked improvement. Both the Regional Board of Health and the medical members have endorsed the proposal of an independent medical audit, but as yet this has not been carried out. The difficulty of finding well qualified persons who have had experience and are available to conduct medical audits will be one of the principal problems for Canadian prepayment plans.

Although far from ideal, these examples may indicate some of the points which can be considered in quality control of a fee-for-service scheme covering a total population where freedom of choice of physician is considered desirable.

## An Outbreak of Typhoid Fever Among New Immigrants to Canada

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THERE is a new generation of public health workers in Canada which has had little or no first-hand experience with typhoid fever and is apt to forget that many of the immigrants now entering Canada come from countries where this disease is still prevalent. This is an account of a minor outbreak of typhoid fever in British Columbia in the summer of 1956 which illustrates the need for constant vigilance.

On June 1, 1956, two related families of German-speaking Mennonites, travelling by car, arrived in the Fraser Valley from Mexico. Four adults and twelve children made this journey. Both families went to the home of a relative (J.L.) not far from Aldergrove and stayed there and at a nearby farm with other relatives for 4 days. On June 4 one family (J.Z.) left for Cawston, B.C. and the other family (J.H.) moved into a berry-picker's shack near the home of friends (J.G.) near Aldergrove.

During the time that these two families were staying with their relatives it was noticed that one of the new arrivals (P.H.) aged three was suffering from diarrhoea, but did not appear very ill.

On June 17, thirteen days after both visiting families had gone, one of the children from the family of Canadian hosts (D.L.) aged nine, lost her appetite, became feverish and began to complain of a severe headache. As she did not improve, the child was seen by a physician and admitted to the hospital in Langley Prairie, with the provisional diagnosis of typhoid fever. Stool and urine specimens were not secured until some time after treatment had been started and both were negative. A Widal test was reported as *S.-typhi-O-pos.*, 1:80; H.-neg. and *S.-para-typhi-B-O pos.*, 1:80; H.-neg.

On June 27 (N.L.) a brother of the first patient became ill and three days later (A.L.) a younger sister developed symptoms of anorexia, fever and headache together with severe left upper quadrant pain. Both were seen by the family doctor and ordered to bed at home.

The local health unit offices received the report on the girl (D.L.) on July 2. Arrangements were made for stool specimens to be sent in from everyone in the four families who had been in contact with the suspect and her parents were asked to stop shipping milk. All contacts were ordered to remain at home until stool specimen results were reported. The health unit sanitary inspector visited the home of the suspect and during the course of his investigations found several conditions which were conducive to the transmission of enteric disease.

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Until July 1 an old privy of very poor construction had been in use. It was overflowing and seepage was evident around the sills and could be traced for some distance. A well was located a scant one hundred feet from this privy on a slightly lower level. The heavy rains during the latter part of June could easily have carried this seepage along the surface and into the well. The well was cribbed with three foot concrete tile and had a gravel backfill. It was evident that surface water had gained entry through the joints which had not been made waterproof. It was discovered, too, that the diapers of the child who had been ill with diarrhoea had been washed in a pan on top of the well and the wash water thrown near-by. Instructions were left for chlorinating the well and the family was advised to boil the water for all domestic use. Instructions were given on how to pasteurize milk for home use, methods of fly control, and the family advised to secure screens for the doors and windows.

A visit to the old berry-picker's shack inhabited by the new arrivals from Mexico revealed that an open bucket type of well was being used for securing wash water for the house and a hand-pumped well located in the field behind the house was in use for obtaining drinking water. Although the hand-pumped well was cribbed with concrete tile, it too was back-filled with gravel. Boiled water for domestic use was advised as was chlorination of both wells.

The two children (N.L.) and (A.L.) did not improve at home and as soon as positive stool specimens were reported both were admitted to the Infectious Diseases Hospital in Vancouver at the request of the family physician. A child (D.H.) aged five from one of the families recently arrived from Mexico though not ill had a positive stool reported at this time and was also admitted to the Infectious Diseases Hospital. Arrangements were made to give all other members of the four families T.A.B. vaccine, as well as those in the community who had contact with any of the cases.

On July 14 a fourth member of the family (D.L.) aged two, became ill with symptoms resembling those of her brother and sisters. She too was admitted to the Infectious Diseases Hospital in Vancouver and subsequent investigation revealed that she had stools which on culture were positive *S-typhi*. Between mid-June and mid-July, one member of the family from Mexico was proven to have typhoid and another was highly suspect. Four children from the Canadian hosts developed typhoid fever but no other member became ill.

It is interesting to speculate on the methods whereby this disease could have been spread. We felt at first that the young boy (P.H.) who was ill on arrival in Canada was the index case and that the other children became ill through drinking water contaminated as a result of the diaper washing that took place on top of the well. However, seven consecutive stool specimens taken from (P.H.) over a three-week period in July were reported negative.

The brother (D.H.) aged five who was found to have a positive stool on routine examination, was diagnosed as being ill with typhoid fever by his attending physician on admission to the hospital in Vancouver, although he had no complaint when seen at home. One or other of these two children must have conveyed the disease to the three children of their host who in turn gave it to a fourth sister.

In each case the diagnosis was confirmed by at least one positive stool. All the Widal tests, though not accepted as conclusive evidence because the history of past exposure was unknown, did tend to confirm the diagnosis made by other means. None of the children involved had ever received T.A.B. vaccine.

During the course of many visits to the families concerned, a very interesting story was uncovered. Many years ago a group of ardent Mennonites arrived from Russia and settled in Saskatchewan. Several years ago some 1,500 of these left Saskatchewan and moved to three districts in Mexico. Recently, Mexican tax laws have been a hardship to these people who tend to have large families, as they are taxed on the basis of the size of the family. For that reason a group of Mennonite leaders are now looking for land in Canada to settle 2,000 of their members. Already, as we have seen, the movement from Mexico has begun on an individual basis.

The two families (J.H.) and (J.Z.) had been among those who left Canada for Mexico. One of the families had lost two children in Mexico and from information gained through an interpreter it would appear that they died of typhoid fever. The father of this family was a bulldozer operator there and earned the equivalent of \$14.00 per day in Canadian money, but, Mexican tax laws required him to pay a tax of \$1.00 per day for each person in his family so that he was left with only \$6.00 per day to support a family of 8 people.

We also learned that when the two families attempted to leave Mexico they were turned back for a few days by American immigration medical authorities because the two-year-old was ill with diarrhoea. After a week's delay both families were permitted to enter the United States and arrived in Canada on June 1, 1956.

What can we learn from this small outbreak? The first and obvious fact for us to recognize is that we have a potential problem for several years to come. Immigration to Canada has started among this group of Mennonites now living in Mexico where typhoid fever is endemic and it may be presumed that there will be more than one carrier of typhoid among those returning.

The second fact was brought home to us through discussions with the Canadian Mennonite friends of these immigrants. Among the Mennonites in Mexico typhoid is taken as a matter of course and no particular efforts are made to prevent its occurrence or to treat it. Those who succumb are considered weak and unfit, those who survive are considered men or women worthy of living. Isolation and quarantine of contacts are concepts that are incomprehensible to most of these people who devote their lives to securing the basic needs for survival. Until we came to understand this fatalistic attitude, we were frustrated and annoyed by the difficulties we had in convincing these people that they should keep themselves and their families away from others until they were well. We soon came to realize that patient and kindly explanation was the only method to win them over to our way of thinking and that direct orders would avail us nothing, not because they wished to disobey but because our instructions were incomprehensible to them.

# The Stability of Mixtures of Old Tuberculin and Epinephrine as Prepared for the Heaf Test

H. C. PLUMMER,<sup>1</sup> M.A., PH.D., AND A. E. DYER,<sup>2</sup> PHM.B., B.Sc., PH.D.

IN 1951, Heaf (1) proposed a method whereby tuberculin sensitivity could be determined with reasonable reliability using a single skin test. To perform the test a special apparatus was employed which perforated the skin with multiple punctures through a film of "adrenalised old tuberculin". Later, Heaf (2) published a description of the material "adrenalised old tuberculin" used to elicit the skin reaction. This material was prepared by the addition of 0.1 ml. of a 1% solution of epinephrine to each ml. of undiluted old tuberculin or to each ml. of 0.2% Purified Protein Derivative adjusted to the same viscosity as old tuberculin.

Reports have appeared by Townsend and MacDonald (3), Irvine (4), Stott (5), Greening (6) and Low (7) of trials comparing the Heaf test and the Mantoux test in which the former seemed to give more satisfactory results. There is general agreement (Low (7) and Irvine (8)) that the Heaf test appears to be more suited for mass screening programs than other methods.

Some doubt, however, has been raised concerning the stability of mixtures of old tuberculin and epinephrine. It has been shown that oxidation of epinephrine is delayed in strongly acid solutions and consequently the pH values of aqueous preparations are usually maintained between 2.0 and 3.0. Since the pH of old tuberculin is only slightly acid (approximately 6.0) it seemed advisable to examine the stability of epinephrine in mixtures stored under various conditions. Parallel observations were made on the potency of old tuberculin in the stored samples.

## METHODS

### *Preparation of test material*

Four samples of 6 different solutions were made as follows:

- (a) 6 ml. OT + 0.6 ml. 1% solution of epinephrine,
- (b) 6 ml. OT + 0.6 ml. 1% solution of epinephrine containing 0.1% Na Metabisulphite,
- (c) 6 ml. OT + 0.6 ml. 1% solution of epinephrine + 0.35% phenol,
- (d) 6 ml. OT + 0.6 ml. 1% solution of epinephrine containing 0.1% Na Metabisulphite + 0.35% phenol,
- (e) 6 ml. OT + 0.6 ml. saline + 0.35% phenol,
- (f) 6 ml. OT + 0.6 ml. saline.

As shown above, to half of the preparations containing old tuberculin and epinephrine a reducing agent, sodium metabisulphite, was added. Similarly, half of the mixtures had phenol added as a preservative. The material was placed in amber coloured glass vials fitted with screw caps and glass droppers.

<sup>1,2</sup>Connaught Medical Research Laboratories, University of Toronto.

Each of the four groups of identical samples was then exposed to a different set of conditions.

The four conditions tested were:

- (1) Storage at room temperature for 6 months,
- (2) Storage under refrigeration ( $4^{\circ}\text{ C}.$ ) for 6 months,
- (3) Incubation at  $56^{\circ}\text{ C}.$  for 24 hours,
- (4) Incubation at  $37^{\circ}\text{ C}.$  for 7 days.

The potency of old tuberculin and epinephrine was assayed on aliquots of groups 1 and 2 at intervals during storage. The activity of epinephrine in samples subjected to incubation at high temperatures (3 and 4) was assessed at the end of the period of exposure.

#### *Assay of Epinephrine*

The activity of epinephrine was measured by changes in blood pressure produced by intravenous injections into cats which had the spinal cord severed. The method was a slight modification of the Dale method as described in "Biological Standards" 1950 edition (9). The Canadian Reference Standard Epinephrine was used as reference material.

#### *Assay of Old Tuberculin*

The various preparations of old tuberculin and epinephrine were diluted to 1:2000 with physiological saline. An intracutaneous injection of 0.1 ml. of the diluted material was made into each of 3 guinea pigs infected with BCG and 1 normal guinea pig. As a control a similar amount of Standard old tuberculin, diluted 1:2000, was injected into each animal. The skin reactions were measured twenty-four hours after the injections. The size of each reaction was expressed as the sum of two diameters measured at right angles and the average calculated for each preparation. In order to compare one test with another, the average value for each preparation was divided by that for the Standard OT used in the test. In no instance was a noticeable skin reaction elicited by any of the injections into normal guinea pigs.

#### RESULTS AND DISCUSSION

Control tests on "spinal cats" used for epinephrine assay showed that intravenous injection of old tuberculin with or without 0.35% phenol caused no significant alteration in the blood pressure. The presence of phenol and/or sodium metabisulphite made no detectable difference in the rate of decomposition of epinephrine in solutions stored at the same temperature. Table I shows that decomposition of epinephrine was more rapid in solutions stored at room temperature than in the refrigerator. The epinephrine activity was reduced

TABLE I—THE ACTIVITY OF EPINEPHRINE IN HEAF TEST MATERIAL AFTER DIFFERENT TIMES OF STORAGE

Weeks of Storage	Approximate—Percentage of Epinephrine Activity Retained by Solution	
	Stored at Room Temperature	Stored in Refrigerator
0	100	100
3	56	84
6	23	71
9	2	60
18	<1	34
27	<1	18

to approximately 50% when stored at room temperature for 3 weeks. Approximately 12 weeks elapsed before a similar loss occurred in solutions stored under refrigeration. Our findings are in agreement with the suggestion by Irvine (8) that after standing for 2 weeks at room temperature or 8 weeks at 4° C. more epinephrine should be added to Heaf test material.

Material left at 37° C. for 7 days lost approximately 30% of epinephrine activity. We were unable to demonstrate a loss of activity in the epinephrine content of material incubated at 56° C. for 24 hours.

The potency of old tuberculin, as measured by the skin reaction of guinea pigs sensitized with BCG, was apparently unaltered by the addition of epinephrine, sodium metabisulphite, and phenol. Furthermore, the stability of old tuberculin was not appreciably affected by the addition of these agents; as shown in Table II there was little if any deterioration of OT in mixtures stored for 6 months at room temperature or in a refrigerator.

It is worth recording that the vial of OT without phenol became contaminated with mould when kept at room temperature.

TABLE II—SKIN TEST REACTIONS OF HEAF TEST MATERIAL INJECTED INTO BCG SENSITIZED GUINEA PIGS

Contents of Vial	Temp. of Storage	Ratios of Reactions to Test & Standard Material <sup>(1)</sup>				
		0 Weeks	3 Weeks	8 Weeks	17 Weeks	26 Weeks
Room Temperature						
OT + Epin <sup>(2)</sup> + Phenol	22-25° C.	1.21	1.10	1.10	0.96	1.07
OT + Epin	"	1.32	1.12	1.03	1.06	1.07
OT + Epin + NaSulp <sup>(3)</sup> + Phenol	"	1.24	1.10	1.07	1.06	1.18
OT + Epin + NaSulp	"	1.23	1.09	1.12	1.03	1.12
OT + Phenol	"	1.19	1.10	1.07	1.03	1.11
OT + Saline	"	1.10	1.04	1.12	1.01	mouldy
Refrigerator						
OT + Epin + Phenol	4° C.	1.15	1.07	1.06	1.06	1.01
OT + Epin	"	1.16	1.06	1.09	1.14	1.04
OT + Epin + NaSulp + Phenol	"	1.17	1.07	1.14	1.04	1.05
OT + Epin + NaSulp	"	1.21	1.12	1.14	1.12	0.99
OT + Phenol	"			1.08	1.07	1.04
OT + Saline	"			1.20	1.09	0.98

(1) Ratio =  $\frac{\text{Size of reaction with test material}}{\text{Size of reaction with Standard OT}}$

(2) Epin = Epinephrine

(3) NaSulp = Sodium Metabisulphite.

### SUMMARY

1. The activity of epinephrine in Heaf test material decreased to 50% during storage for 3 weeks at room temperature. When refrigerated, approximately 12 weeks elapsed before a similar decrease in activity was noted.
2. The activity of old tuberculin, as measured by the skin reaction of guinea pigs sensitized with BCG, showed no appreciable decrease after storage at room temperature, or under refrigeration for 6 months.

3. When injected intravenously into "spinal cats", old tuberculin with or without 0.35% phenol caused no appreciable alteration in the blood pressure of the cat.
4. Addition of 0.35% phenol prevented the growth of mould in preparations of OT but did not appear to affect the rate of decomposition of epinephrine in the mixture.
5. No decrease in the rate of decomposition of epinephrine could be detected in preparations containing 0.1% of the reducing agent, sodium metabisulphite.

#### ACKNOWLEDGEMENT

The authors wish to express their gratitude to Dr. M. H. Brown, Assistant Director of the Connaught Medical Research Laboratories, for his initial interest in this problem and guidance in conducting the investigation.

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#### PREVENTION OF SECONDARY ATTACKS OF RHEUMATIC FEVER<sup>1</sup>

We know that continuous prophylaxis can reduce the rheumatic fever recurrence rate by well over 85% if conscientiously carried out. Experience reveals that either oral sulfadiazine, oral penicillin, or benzathine penicillin administered intramuscularly can be effective. However, there have been more frequent breakthroughs of streptococcal infections on sulfadiazine and on oral penicillin than with intramuscular benzathine penicillin.

Current experience reveals that individual efforts of physicians or patients are

not enough to maintain interest in and adherence to prescribed preventive measures. Approximately an 85% reduction in recurrences of rheumatic fever could be expected if current recommendations on prophylaxis of rheumatic fever were followed conscientiously.

Health departments, heart associations, and practising physicians need to join forces in developing effective community rheumatic fever prevention programs that will assure the application of proved measures for the prevention of rheumatic fever.

1. William J. Zukel, M.D., Public Health Reports, 1957, 72: 895.

## The Role of the Food and Drug Inspector in Sanitation<sup>1</sup>

O. B. PETURSSON, C.P.H.<sup>2</sup>

DURING the past two years there has been a growing interest in the work of the Food and Drug Directorate in this field. While the Directorate, a division of the Department of National Health and Welfare, has long been interested in sanitation as related to food, drugs and cosmetics, it was in 1954 that specific prohibition was embodied in the Act in regard to the preparation and sale of food, drugs or cosmetics under unsanitary conditions. The Act is drafted as a criminal law enactment and as such it prohibits directly or indirectly the doing of certain things.

The Food and Drugs Act and Regulations, administered and enforced by the Directorate, are concerned with much more than sanitation of products. In the course of enforcing the Act and Regulations the work of the Food and Drug inspectors is varied.

In the first place, the inspector's authority applies to the whole of Canada. He is interested in the sale and distribution of foods, drugs, cosmetics and devices at any level, such as manufacture, wholesale, retail or import. He reports upon processes, products, labelling and advertising. He also collects samples of various products and may on occasion be required to conduct the laboratory examination of them. More often specimens are submitted to the laboratory staff. The inspector is also required to take the appropriate action against violations of the Act. The Food and Drugs Act and Regulations provide standards for foods, drugs, cosmetics and devices. The Act prohibits the use of poisonous or harmful substances in foods, and the use of filthy or decomposed substances in food or cosmetics; it prohibits foods, drugs or devices to be labelled, packaged, processed or advertised in a false or deceptive manner. It prohibits the sale or manufacture, preparing, preserving, packaging or storing for sale, any food, drug or cosmetic under unsanitary conditions.

Unsanitary conditions are described as such conditions or circumstances as might contaminate a food, drug or cosmetic with dirt or filth or render the same injurious to health. What is unsanitary is decided by the inspector in accordance with directives from headquarters.

The scope of the Directorate is vast and individual inspectors tend to do only certain phases of the work. Thus, there are inspectors who are more interested in drugs and cosmetics, or food, or advertising and labelling, or other fields.

<sup>1</sup>Presented at the forty-fifth annual meeting, Canadian Public Health Association, held in Toronto, Ontario, May 27-29, 1957.

<sup>2</sup>Food and Drug Directorate, Department of National Health and Welfare, Toronto 7, Ontario.

It should be understood that the provincial or local health departments and the Food and Drug people operate under different acts. In food sanitation our interests are similar but we view the product with different objectives in mind. Besides being concerned with whether the condition of the product is a health hazard the Directorate is concerned with whether the product contains filth or foreign substances which should not be there yet are not health hazards. The product, too, must be properly presented and must not deceive the consumer. It must meet the standards of purity, quality and content laid down in the Act and Regulations.

In the performance of our duties we may cross the paths of other official agencies. Wherever we have a common interest we wish to stimulate co-operation between ourselves and such agencies which may be at the federal, provincial or local level. We have no desire to replace another agency's work, rather we wish to complement it. As a matter of fact, we are often glad to have another agency's help in order to reach a desired objective in plant sanitation. I do not believe this point can be over-emphasized and by working together we can achieve our desired goal by utilizing the regulations we each have at hand.

Though our staff is small in numbers, we can be great in accomplishment. We believe we can be most effective by being very firm and insistent that improvements be made when required yet at the same time remain just and fair.

We are interested in all foods and in all forms in which they are sold. We keep our finger on the pulse of the whole food industry. At the beginning of our sanitation program, a choice had to be made as to where to begin. We started with cheese factories and shortly after with slaughterhouses, flour mills and poultry plants. We have plans to include other industries. Our desire is to have these plants meet reasonable standards and be uniform across Canada. In some areas the view may be that these standards are too low, and in other areas the standards may be considered too high. Some plants will meet our standards or pass beyond them as a result of the efforts of the local health department. Nevertheless, we have to visit them occasionally in order to have a visual comparison with plants that have little or no other inspection. To discharge our responsibility we must write to the manager of the plant about any unsatisfactory conditions noted. We are obliged to see that such conditions are corrected.

Our control over environmental sanitation is limited. We consider unsatisfactory conditions only as they may affect the product. Sometimes we would welcome help from local health departments and I think sometimes they need help from us. With mutual co-operation I believe we should achieve satisfactory results.

# *Canadian Journal of Public Health*

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## BETTER HOUSING FOR THE HEALTH DEPARTMENT

THE majority of health departments are located in public buildings housing other departments of local government. Too often, the health department is in the basement of the city hall or municipal building with rooms entirely inadequate for the needs of the department. The accommodation is makeshift, inefficient and uninviting to the citizen. Business and professional people make every effort to provide themselves with accommodation that gives the public a good impression. Their premises afford convenience for the public, efficiency for the staff and pleasant surroundings for both. Yet, little has been done to make the local health department an attractive, modern center. To the public the health department is concerned largely with the removal of nuisances and the enforcement of regulations. Today's modern health department program requires modern facilities and a setting which tells the story of good health. Public Health and preventive medicine are scarcely considered in the planning for the future. The need for the best in hospitals is recognized and a new impetus to construction programs will be given in the introduction of state-assisted hospital insurance. One might well ask why a construction program for health departments and health centers aided by federal and provincial grants should not keep pace with hospital construction in proportion to need. Health centers are cheaper to build and save a considerable amount of hospital space.

Possibly the poor housing of the health department reflects the lack of appreciation of its work. People do not know that millions of dollars are being saved through preventive medicine and public health. Yet, little or no effort is being made to acquaint the public with the facts and to create a sense of pride in their health departments.

The responsibilities of health departments have become and will continue to be more complex. New demands are being made, some of which require the employment of new staff with new skills. Personal recruitment and interest depend upon the provision of adequate accommodation with suitable equipment. Public recognition will be lacking as long as the activities emanate from basements and makeshift premises. In those fortunate communities which have buildings suited to their needs, it has been found that staff morale has im-

proved. Public respect and acceptance have been increased by the cheerful, efficient, dignified surroundings.

There are notable exceptions and in some of the newly-established rural health units attractive settings for the unit offices have been provided. In several cities recently, new health department facilities have replaced inadequate accommodation and plans are under way in others. In Hamilton, Ontario, under the able leadership of Dr. L. A. Clarke, the cramped quarters in the old library were replaced by a modern three-storey health center building which provides adequate accommodation and inspires the public in the department's work. One additional health center building has been provided and another is planned showing the understanding of the citizens of Hamilton of the need for modern facilities for their health department. The plans for the buildings in Hamilton are worthy of the careful study of medical officers of health.

Similarly, in Edmonton, Dr. G. A. Little, Medical Officer of Health, took an important part in the planning of Edmonton's new city hall. As a result, the upper two floors of this imposing eight-storey building have been designed to provide facilities in keeping with the importance of the health department in Edmonton's civic program.

The situation relating to health department accommodation needs to be remedied. Surely the results of past work and the present stature of preventive medicine merit housing that will indicate to the community the true value of public health.

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Many  
Merry Christmases  
Many  
Happy New Years  
Unbroken Friendships  
Great Accumulation of Cheerful Recollections  
Affection on Earth, and  
Heaven at last for all of Us.

CHARLES DICKENS.

## NEWS NOTES

### Federal

The 72nd meeting of the Dominion Council of Health was held in Ottawa on November 5, 6, and 7.

Canada's first National Conference on Nursing was held in Ottawa on November 4 and 5. The purpose of the Conference was to provide an opportunity for nurses and a cross-section of the Canadian public to consider the needs of nursing services in Canada in terms of quantity and quality and the means of meeting these needs. The Conference was under the chairmanship of Mr. Joseph Jeffrey, O.B.E., Q.C. of London, Ontario. The opening addresses were given by Dr. F. B. Roth, Deputy Minister of Public Health of Saskatchewan and Mrs. Isobel MacLeod, Director of Nursing of the Montreal General Hospital.

Dr. L. B. Pett, chief, Nutrition Division, Department of National Health and Welfare, was a member of the Canadian delegation to the meeting of the United Nations Food and Agriculture Organization held in Rome, Italy, from November 1-26.

The services of R. E. Curran, B.A., LL.B., Q.C., legal adviser, Department of National Health and Welfare, are being loaned through the World Health Organization to the government of Trinidad to assist in a revision and consolidation of its public health legislation. Mr. Curran recently returned from a preliminary survey of the work and expects to return to Trinidad in December for approximately three months to complete the assignment.

D. G. Emerson has joined the headquarters staff of Indian and Northern Health Services, Department of National Health and Welfare as financial officer for Northern Health Services.

A national health grant of \$26,600 has been approved for assistance during the current fiscal year toward the costs of operating a new health unit which is to provide full-time public health services for about 30,000 people in the southern part of Ontario County, Ontario. The unit commenced operations July 1 under the direction of Dr. W. E. MacBean.

Miss Joan Rogerson, for the past three years with the Prince Edward Island Department of Health, has joined the Dental Health Division, Department of National Health and Welfare, as a dental hygienist. Miss Rogerson is a graduate of the Forsyth Institute, Boston.

Information Services Division, Department of National Health and Welfare, provided exhibits illustrating the department's

work in public health at the 27th congress of l'Association des Médecins de Langue Française du Canada, held in Quebec City from September 23-26, and at the annual meeting of the American Public Health Association in Cleveland, Ohio, from November 11-15. An exhibit on dental health education was provided for the meetings of the Montreal Dental Club from October 23-25. Also shown at this meeting was a new film on malocclusion, "Putting It Straight".

John E. Reid, M.Sc., a 1957 graduate of McGill University, and E. Sahaneck, M.S.A., who graduated this year from the Ontario Agricultural College, have joined the staff of the Laboratory of Hygiene, Department of National Health and Welfare, as bacteriologists. Mr. Reid is working with the bacteriology section and in particular with the mobile laboratory. Mr. Sahaneck is in the section engaged in zoonosis work.

Dr. C. A. Roberts, chief, Mental Health Division, Department of National Health and Welfare, was recently named secretary of the Canadian Psychiatric Association.

Hospital construction grants recently approved under the National Health Program include: *British Columbia-Surrey Memorial Hospital, North Surrey, \$77,310.*

A National Health Grant of \$8,000 in the current fiscal year was recently approved to assist a research project on the etiology of cleft lip and palate and other congenital anomalies, to be carried out under the direction of Dr. Hamilton Baxter at the Royal Victoria Hospital, Montreal.

J. P. Windish, Laboratory Services, Occupational Health Division, Department of National Health and Welfare, assisted the section of environmental sanitation of the Manitoba Department of Health and Public Welfare to carry out a survey of degreaser operations in Manitoba industries during November.

An orthophonic and audiology centre for both children and adults is being established at Notre Dame Hospital, Montreal, with the assistance of a National Health Grant of more than \$40,500. To be directed by Dr. Fernand Montreuil, it will be the first centre of its kind for French-speaking patients and will be devoted to the diagnosis and treatment of problems of speech and hearing.

H. Gordon Hughes, B.Arch., chief, Hospital Design Division, Department of National Health and Welfare, presented a paper on "New Developments in Hospital Design and Construction" at the annual

meeting of the Ontario Hospital Association in Toronto late in October.

Dr. S. K. Ghosh and Dr. F. D. Sowby, Radiation Services, Occupational Health Division, Department of National Health and Welfare, presented a clinic on "Economy of X-rays in Dental Radiography" at the annual meeting of the Eastern Ontario Dental Association, held in Ottawa in September.

#### School of Hygiene, University of Toronto

The following postgraduate students, thirty-nine in number, are in attendance in public health and hospital administration courses for the 1957-58 session.

*Diploma in Public Health:* Drs. K. I. G. Benson, B.C.; D. A. J. Keen, Jamaica; A. G. Lowden, Sask.; W. L. Marshall, Man.; H. K. Mironowitz, Ont.; N. A. Morrison, N.S.; T. T. Myint, Burma; G. F. R. Parker, Ont.; P. T. Percheson, Ont.; J. A. Rassell, R.C.A.F.; D. E. Ryder, R.C.A.F.; J. H. Smith, B.C.; S. Selvaratnam, Ceylon; P. Sivasothy, Ceylon; N. Schmitt, D.N.H. & W. (Indian Health); and J. B. Sherman, Alta. *Diploma in Veterinary Public Health:* Drs. A. E. Abdou, Egypt; V. M. Crespo, Brazil; V. J. A. Ikeda, Ont.; and F. Werner, Venezuela.

*Diploma in Hospital Administration:* Dr. J. W. B. Barr, R.C.A.M.C.; P. R. Carruthers, Ont.; Dr. W. S. Hacon, R.C.A.M.C.; R. L. Innes, Ont.; G. F. McCracken, Ont.; C. A. Meilicke, Sask.; J. A. Rafuse, N.S.; Sister Ann Martin, N.S.; Sister Maria Loyola, N.S.; Mrs. D. White, New York.

*Diploma in Industrial Hygiene:* Dr. R. B. Barron, R.C.A.M.C., and Dr. W. W. Laughland, R.C.A.F.

*Diploma in Dental Public Health:* Dr. S. J. Gallagher, B.C., and Dr. H. J. Phillips, B.C.

*Certificate in Public Health (Nutrition):* Miss C. Pouliot, Quebec, and Miss M. J. Sherry, N.S.

*Master of Applied Science (Sanitary Engineering):* G. D. Steele, R.C.A.F., and H. Browne, Ont.

Dr. A. J. Rhodes, Director of the School, announces that Mr. M. Katz of Ontario (now New York) has been chosen as the winner of the Robert Wood Johnson Award (\$1,000) for the 1956-57 session.

#### Prince Edward Island

Dr. B. J. O'Meara, Director of the Division of Dental Public Health, has initiated an orthodontic program for children in connection with his Division. Dr. O'Meara spent several months observing and participating in procedures of this type in Great Britain and on the Continent in preparation

for this work. Cases requiring special attention will be referred to this clinic by the dentists of the province; the course of treatment will be decided and actual therapy carried out at the clinic or by the family dentist under the supervision of the Director. As the amount of orthodontic work performed in the province up to this time has been small, it is believed that this service will result in a marked benefit to children with dental disabilities of this type.

Dr. R. B. Abel, formerly in practice at St. Peters, is presently undertaking post-graduate study in pathology at the Bender Laboratories, Albany, N.Y. and will return to the province as Pathologist with the Division of Laboratories following completion of his course in 1959. He will take the post recently vacated by Dr. Neil Boyd who resigned in September to take a post in Alberta.

We are deeply indebted to Dr. William Taylor, Professor of Pathology at Dalhousie University, Halifax, for his successful efforts in arranging to supply the services of three senior residents in pathology during their vacation periods pending the appointment of a Director of Laboratories in this province. It is expected that this position will be filled in the near future.

Miss Mona Wilson, R.N., Director of the Division of Public Health Nursing, recently attended a five-day course on civil defence at Arnprior, Ontario. She also participated in the National Conference on Nursing held in Ottawa on November 4 and 5.

Dr. B. D. Howatt, Health Officer, has established poison control centers at the two large hospitals in Charlottetown and at the Prince County Hospital in Summerside. A member of the hospital staff has been placed in charge of the center in each hospital and Dr. Howatt works closely with those physicians in keeping the information up-to-date and in obtaining the necessary reports on cases of poisoning. It is considered that the setting up of three centers to serve our population of 100,000 people will give better coverage than in any other province in Canada.

The public health nurses, in co-operation with local physicians and nurses, have just completed an extensive poliomyelitis immunization program on Prince Edward Island in which over 35,000 people were inoculated. Only two suspected cases of polio, both non-paralytic, have been found on Prince Edward Island to date this year.

#### Nova Scotia

Mrs. Amelia Shawcross, public health nurse in the Cobequid Division for the past

two years, has resigned as she is leaving the Province.

Miss Elizabeth O'Connell has recently been appointed to the staff of Nutrition Division and will work in the counties of Halifax, Lunenburg and Queens. Miss O'Connell is a graduate in home economics from Mount Saint Vincent College and received her dietetic internship at St. Michael's Hospital, Toronto. She has also spent two summers in the messing branch of the R.C.A.F., receiving her commission as a Pilot Officer under the university reserve training plan.

#### Ontario

A grant of \$50,000 has been made by the province to the Canadian Red Cross Society to assist in expansion of its free blood transfusion service in Ontario. At present this free service is limited to the area of Hamilton, Niagara Peninsula, Galt, Guelph and Brantford and the lakehead cities. It is planned to expand the service into Metropolitan Toronto early next year.

In a continuance of its fight against pollution of Ontario's waters, the Ontario Water Resources Commission has tightened its policy in connection with construction of sewers by municipalities. Commission approval for construction of sewer extensions, additions or new projects will not be given until the municipality concerned embarks upon a program of sewage treatment.

"Personality Factors in the Healing Process" was the title of the paper presented by Dr. B. H. McNeel, Chief of the Mental Health Division, Ontario Department of Health, at the annual meeting of the Medical Advisory Section, Ontario Tuberculosis Association held recently at the King Edward Hotel, Toronto.

Ontario had only three deaths from poliomyelitis this year up to October 30. The victims all lived in Toronto and were an 18-month-old baby, a man and a woman, both 30. Last year there were six deaths in the same period and in 1953, 104 deaths. Up to October 30 there were 58 cases of polio reported in the province this year, 47 of them paralytic cases. Last year there were 170 cases and in 1953, 1,988 of which 878 were paralytic. Of the 47 paralytic cases this year two had received one dose of Salk vaccine, three two doses and two had the full three doses. The remaining 40 had not received any vaccine.

Minister of Agriculture, W. A. Goodfellow, announced recently that the entire province has been designated a supervised area under the Brucellosis Act. As a result of this order, all female calves must be vac-

cinated after they reach the age of 4 months but before becoming 11 months old. The cost of vaccination is borne by the province.

#### Manitoba

The Selkirk Health Unit personnel had the opportunity of participating in two teachers' conventions during October. At Beausejour, a one-hour program was planned by the health unit staff. Miss Helen Hildebrand, a public health nurse, spoke on the health unit services and introduced the guest speaker, Miss P. Desjardins who spoke on the teachers' requested topic of juvenile delinquency. At Selkirk, a discussion was held about health education in the schools at junior and senior level. The discussion leaders were: Miss P. Hadland, senior P.H.N., Selkirk; Mrs. K. Peschel, dental hygienist; Miss A. Mahon, junior nutritionist; Dr. A. Schwartz, director of dental services; and Miss Ethel Martens, health educator. On the following day an hour was allotted to health education in the primary and elementary grades. The emphasis here was placed on dental health. Miss P. Hadland gave a brief outline of the health unit services in the schools. Dr. A. Schwartz emphasized the need for dental health education and presented a brief summary of the findings of the dental health survey held recently in grades I and V in the Selkirk schools. A demonstration lesson in dental health to a grade IV class (three children from each grade IV class in Selkirk town schools) was given by Miss Ethel Martens, the health educator.

In the Stonewall Health Unit, Dr. J. Conty, medical director, provides a meeting of all his staff and the advisory board of health for the unit once a month.

At the spring meeting of the Manitoba Public Health Association, reference was made by Dr. H. Medovy of the Winnipeg Children's Hospital of the contribution which the poison control center in the Children's Hospital is making in the reduction of home accidents in Manitoba. This center is one of a number which are now functioning in Canada. The center is under the direction of Dr. Lyle McDonald with Dr. Percy Barsky, co-director and staffed by members of the Children's Hospital. It operates with the co-operation of the provincial health department, the food and drug division of the national Department of Health and Welfare and the Winnipeg and Manitoba medical associations. It provides treatment and information concerning all known poisons and the composition of household products, insect sprays, etc.

**Saskatchewan**

A 120-mile flight with a 60-mile-an-hour wintry gale blowing was the gruelling experience of Flight Nurse Irene Sutherland of the Saskatchewan Air Ambulance Service after a wild duck crashed into the plexiglass windshield of a Cessna 195 aircraft. The accident happened five minutes out of Estevan near the U.S. border where Pilot Supervisor Don Campbell was to pick up an emergency patient for Regina. On the 40-minute flight to Estevan, the pilot had to fly at 200 feet to avoid thousands of wild ducks which were also heading south. They were in formations of several hundreds just below a 500-foot cloud ceiling. Suddenly two ducks, apparently panicked, "peeled off" and dived straight at the aircraft. One came in through a propeller, which apparently sheared off its head, and made a 14-inch hole in the plexiglass to the right of the pilot. Miss Sutherland sustained a minor cut on a wrist and was showered with plexiglass, blood and feathers. Worse, there was no way of avoiding the blast of cold air as the pilot turned the plane to return to Regina. With a second aircraft on an emergency trip elsewhere, the pilot was obliged to land in a field and the patient was transferred to a road ambulance.

The Air Ambulance Service, a division of the Department of Public Health, has carried approximately 9,000 emergency patients without mishap in the eleven years since it was inaugurated.

**Alberta**

Dr. L. W. Mackey has been appointed as temporary medical officer of health for the Vegreville Health Unit in place of Dr. Peter Carmichael. Dr. Mackey is a graduate of Guy's Hospital Medical School, London, and obtained his Diploma in Public Health from the Royal Institute of Public Health and Hygiene.

Medical officers and public health nurses throughout Alberta have been going all-out to administer Asiatic influenza vaccine to workers in essential occupations. The expedient of giving an intradermal dose of 0.1 cc. in place of a subcutaneous dose of 1 cc. has made it possible to extend this protection to an estimated 76,000 persons.

**British Columbia**

Due to a recent outbreak of shellfish toxicity in B.C. waters, a meeting was called of the Pacific Shellfish Committee, at which it was decided to institute a complete temporary closure with respect to the harvesting of clams and oysters in the province. This outbreak, which is believed to be caused by a marine plankton—*Gonyaulax catanella*, resulted in 42 cases of poisoning among humans all of whom experienced symptoms of numbness of the lips, tongue and mouth, and tingling sensations of the arms and legs. No fatal cases were reported. Testing is continuing and certain areas have now been removed from closure.

Dr. George Kinneard, Director of Local Health Services for Saskatchewan, and Miss Mary Edwards, Director of Public Health Nursing for that province, visited B.C. to observe local health services here. Their trip took them to the Okanagan, to Nanaimo in the Central Vancouver Island Health Unit and to Vancouver and Victoria. While in Victoria Dr. Kinneard addressed a meeting of the B.C. Local Health Services Council.

Progress is being made in the plans for the joint meeting of the Canadian Public Health Association and the Western Branch, American Public Health Association, to be convened in Vancouver May 19-23, 1958. Arrangements will provide for a day and a half of general sessions and a day and a half of sectional meetings. Outstanding workers and speakers in public health have accepted invitations to participate in the general program, while interesting timely presentations are being drafted for the sectional meetings.

A banquet and entertainment will be held at H.M.C.S. Discovery, bordering on Vancouver's harbour and the famous Stanley Park. The committee in charge of entertainment is planning an enjoyable evening.

Posters publicizing the event are being sent to all health departments in Canada and the western United States. As 1958 is Centennial Year for British Columbia, the province will adopt a festive air and there will be many attractions outside of the convention to stir interest and attract travel to B.C. Make your plans early to attend.

## Books and Reports

**MANUAL OF THE INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES, INJURIES, AND CAUSES OF DEATH, Volume 1.** World Health Organization, Ryerson Press, Toronto, 1957, 393 pp., \$3.00.

The World Health Organization has just published the first volume of the new edition amended in accordance with the Seventh Revision of the International Lists of Causes of Death. No alterations to the actual structure of the classification have been made by the Seventh Revision. The main modifications are essentially intended to improve the existing provisions or to make them more precise. In the section dealing with neoplasms, new four-figure categories make it possible to classify certain neoplasms according to anatomical site in more detail. Some changes have been made in the Nomenclature Regulations in order to render certain of its provisions less rigid. Finally, the rules to be followed for selection of the underlying cause of death have been modified or made more precise in certain points, so as to facilitate their application.

The second volume of this work, the alphabetical index, will be published within the next few months.

**THE NEW FRONTIERS OF AGING,** Wilma Donahue and Clark Tibbits, University of Michigan Press, Ann Arbor, 1957, 209 pp., \$5.00.

The eighth Michigan Conference on Aging held in 1955 was entitled "Aging—Applying Today's Knowledge Today". The annual conference is well-known to public health workers in Canada. This volume is devoted largely to a report of the research symposium. It was not possible to in-

clude the discussions held by the various workshop groups. The book offers one of the first correlated compilations of the trends and factors identified from data collected in original studies of the social problems of aging. This book, by some of the nation's outstanding gerontologists, offers new answers to many of the crucial questions now plaguing the country's older population. They treat such topics as Aging and Rural Life, Health in Middle and Later Years, The Older Generation in the Family, Personal and Social Adjustment in Retirement, Mental Health in Advancing Maturity. Challenging the validity of commonly held beliefs, these specialists point the way to a new future for the aged.

**TEN MILLION AND ONE: Neurological Disability as a National Problem.** Hoeber-Harper, New York, 1957, 102 pp., \$3.50.

The National Health Council of the United States convened the first national conference of experts on neurological disability as a national problem. Outstanding authorities participated in the conference. The chapter headings of the published proceedings include: "The Challenge", "Economics", "Professional and Technical Management of Neurological Disabilities", "Preparation for Mature Living", "Outlook for Research", "Information and Education Problem", and "Ten Million and One: A Summary".

The wide scope of the book makes it valuable for all who are concerned with problems in neurological disability. The National Health Council is to be congratulated for arranging this conference and for publishing the presentations in book form.





# *Canadian Journal of* **PUBLIC HEALTH**

*The National Journal of Preventive Medicine*

**Volume 48**

**DECEMBER 1957**

**Number 12**

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H. C. Plummer and A. E. Dyer

## **THE ROLE OF THE FOOD AND DRUG INSPECTOR IN SANITATION**

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Dr. A. J. Rhodes,  
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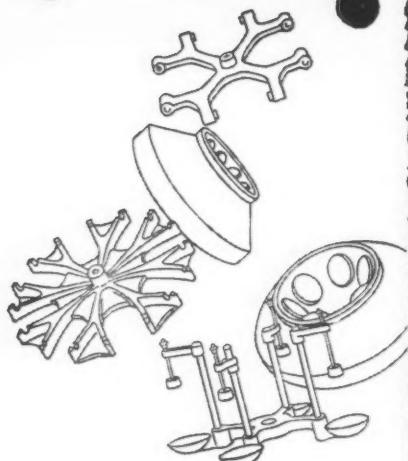
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# *Canadian Journal of PUBLIC HEALTH*

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VOLUME 48

DECEMBER 1957

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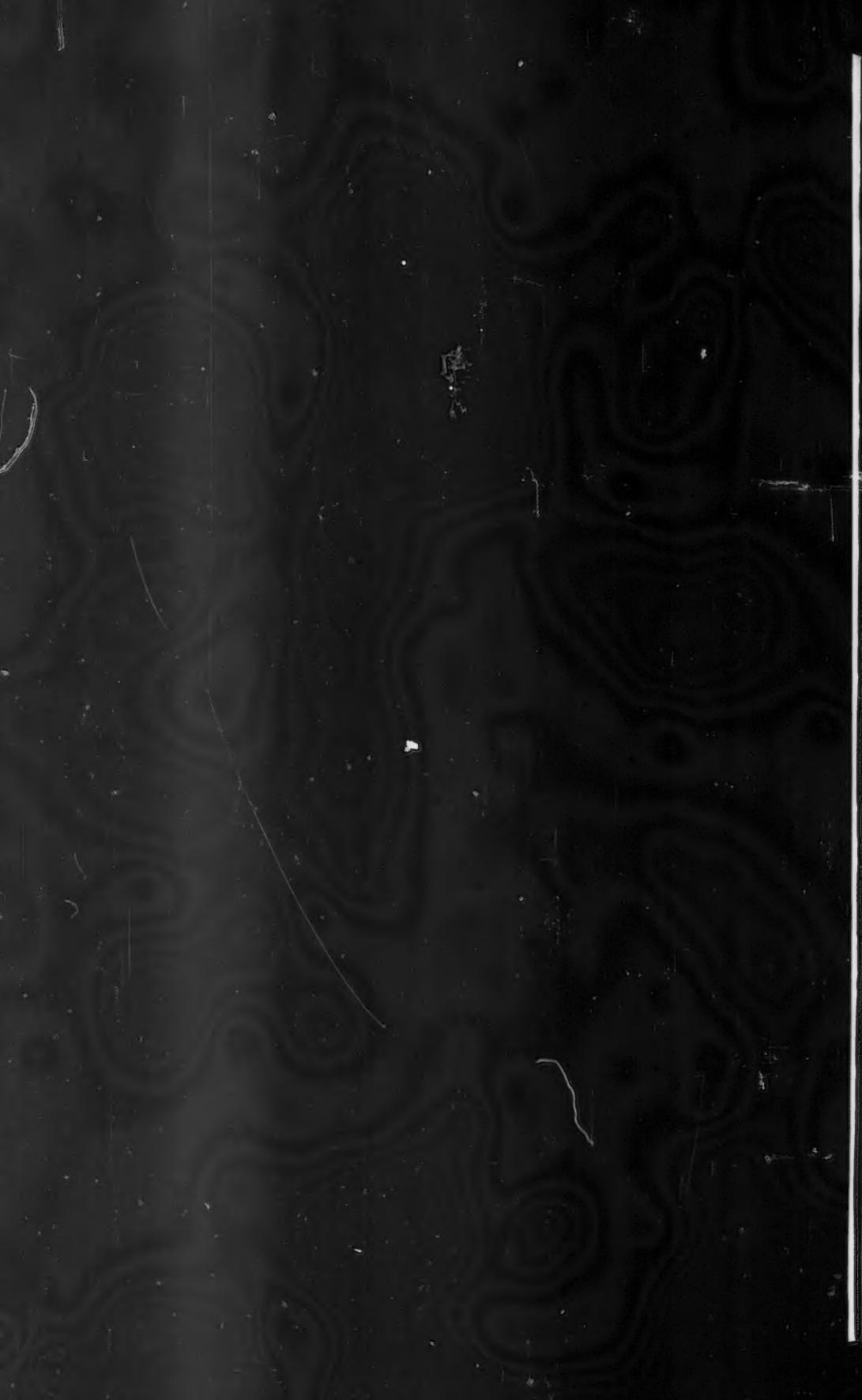
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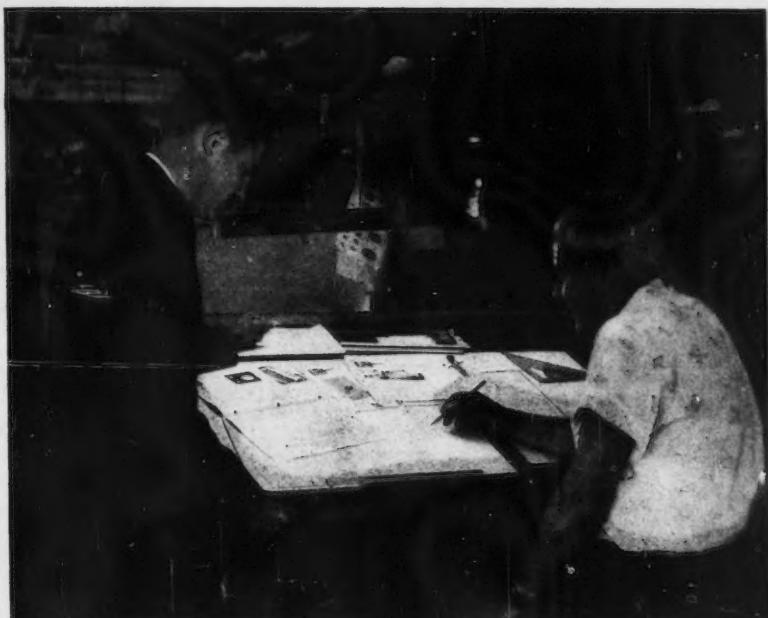
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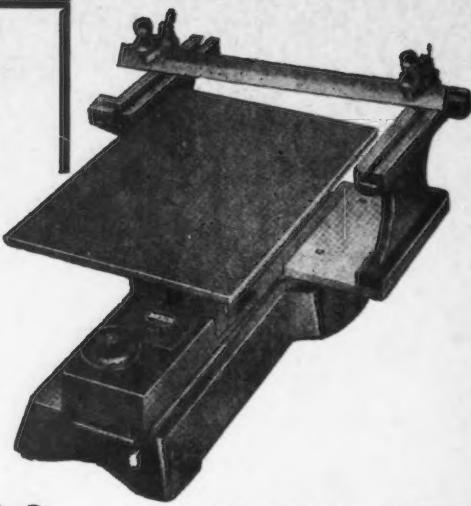
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